

## Case Reports

---

### GONOCOCCAL ENDOCARDITIS

IN AN INFANT TEN DAYS OLD WITH GONORRHEAL CONJUNCTIVITIS

W. W. BRANDES, M.D.

DALLAS, TEXAS

Attention has been called to the infrequent occurrence of acute ulcerovegetative endocarditis in infants by Osler, Still, Finkelstein, Holt and others. Bass<sup>1</sup> cited a case reported by Czerny in an infant 1 month of age and Bidone's case of an infant that lived nineteen hours. In 1930, Sansky and Larson<sup>2</sup> reviewed the literature, and found the reports of five cases in infants under 7 months of age. They were unable to confirm the report of Czerny's case in the literature. In the case they reported, that of an infant 5 weeks old, the mitral valve was involved. They considered their case the first authentic one occurring in an infant during the first six weeks of life. De Vecchi<sup>3</sup> studied the heart valves in children under 10 years of age. In performing 1,062 autopsies he found 18 cases, 2 of which were in infants under 1 year. He stressed the point that gross lesions may not be present, and yet microscopic lesions may be found on careful search. Microscopic lesions were present in the valves in children having infections elsewhere. De Vecchi expressed the belief that the valvular lesions are characteristic, and that thrombotic masses are formed secondarily. He thinks that the latter are not so likely to form in a child under 3 years of age because of the constitution of the blood. Grant, Wood and Jones<sup>4</sup> consider that the small thrombi which form over small areas of degeneration and superficial necrosis on the valve are primary and offer a foothold for bacteria present in the blood stream.

Small areas of necrosis or degeneration may be due to toxic substances and not to bacteria. One must keep in mind a distinction between toxic and infectious endocarditis.

---

From the Pathology Laboratory, Baylor University College of Medicine.

1. Bass, M. H., in Abt, I. A.: *Pediatrics*, Philadelphia, W. B. Saunders Company, 1924, vol. 4, p. 362.

2. Sansky, J. M., and Larson, L. M.: *Acute Bacterial Endocarditis in Infancy*, *Am. J. Dis. Child.* **39**:1261 (June) 1930.

3. de Vecchi, Bindo: *Endocarditic Processes in Childhood*, *Arch. Path.* **12**:49 (July) 1931.

4. Grant, R. T.; Wood, J. E., and Jones, T. D.: *Heart Valve Irregularities in Relation to Subacute Bacterial Endocarditis*, *Heart* **14**:247, 1927.

## REPORT OF CASE

*History.*—An infant, 10 days of age, weighing 5 pounds (2,267 Gm.), whose birth was slightly premature (about the eighth month), entered the Bradford Memorial Hospital, the service of Dr. W. H. Bradford. Birth was by face presentation, and the bag of waters ruptured about twelve hours previous to delivery. The mother stated that the infant was blue. On the third day an exudate was noticed in both conjunctivae. Smears from the exudate revealed intracellular and extracellular diplococci that reacted negatively to Gram's stain and had the mor-

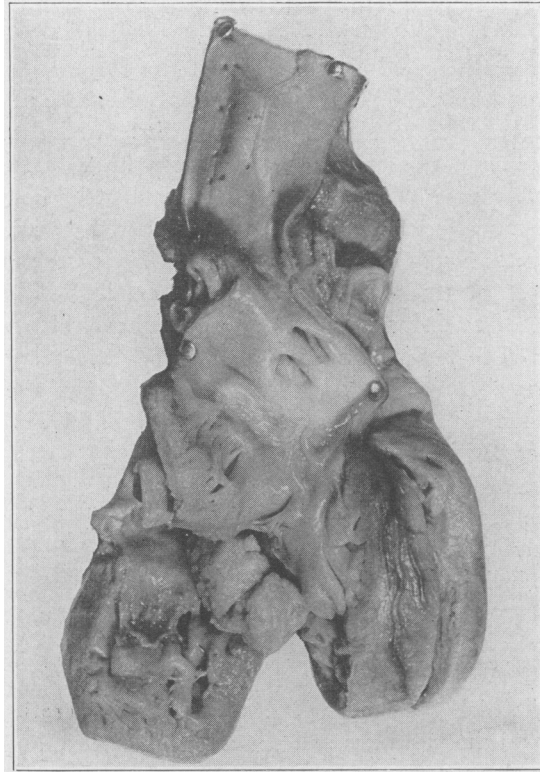


Fig. 1.—Vegetation on the tricuspid valve. Patent ductus arteriosus.

phologic characteristics of gonococci. The conjunctivitis abated under treatment; however, the infant lost weight and had a temperature of from 99 to 103 F. There was a leukocytosis of 16,500 cells. The heart beat was rapid, but no murmurs were heard. The mother was 33 years of age. This was her first pregnancy. A profuse vaginal discharge developed following delivery; smears of this material revealed gram-negative intracellular and extracellular diplococci. There was no evidence of metastatic lesions in the mother. The Wassermann test of the mother's blood gave a reaction of 4 plus.

Necropsy revealed an undernourished white girl without obvious signs of prematurity. The skin was slightly icteric. The conjunctivae were diffusely reddened and lusterless over the palpebral portion; that portion in the sulcus was

somewhat thickened. The thymus was small. The heart weighed 15 Gm. The foramen ovale was patent for 3 mm. The ductus arteriosus was widely patent throughout. There was a large yellowish-gray, friable, thrombotic mass (6 by 12 mm.) attached to the posterior leaflet of the tricuspid valve. This leaflet was partly ulcerated. Several small (1 mm.) reddened, dull areas were present on the other leaflets of the tricuspid valve. The other valves of the heart were free from gross change. The wall of the right ventricle measured from 2 to 3 mm. in

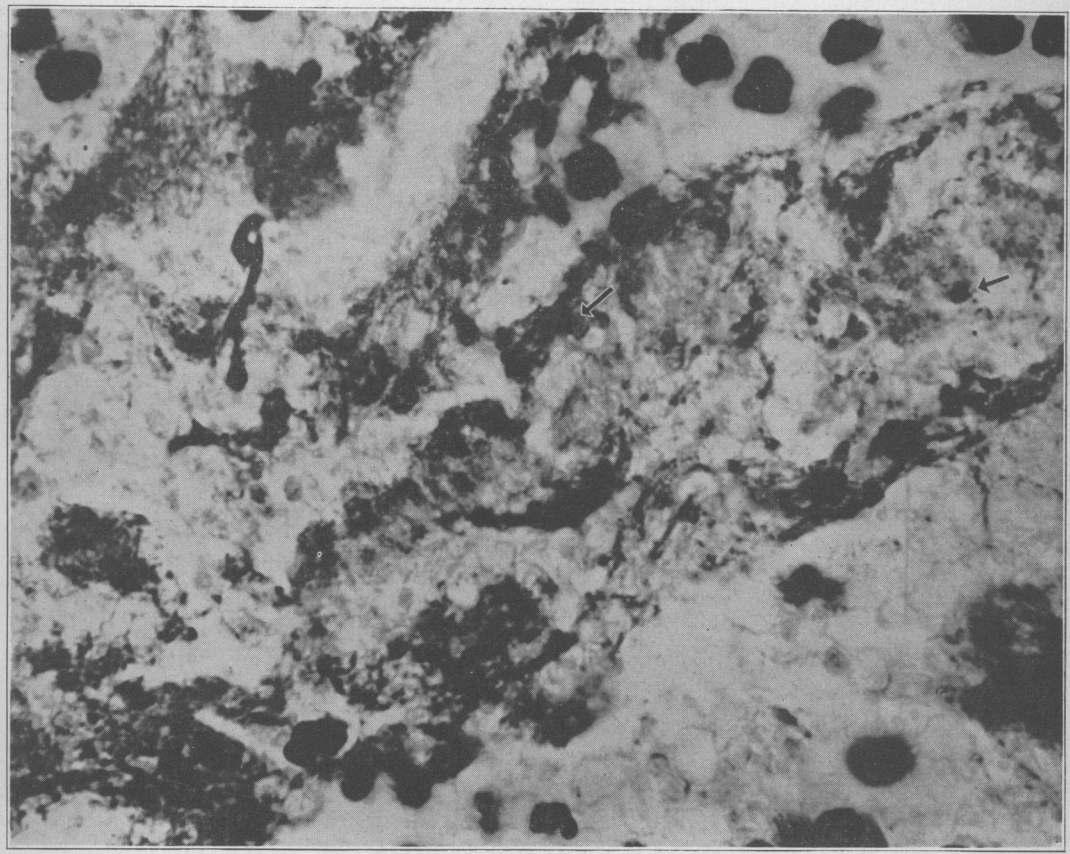


Fig. 2.—Gram-negative intracellular and extracellular diplococci in vegetation; reduced from a magnification of  $\times 1200$ .

thickness, that of the left from 2 to 4 mm. There were several reddish-gray, roughly triangular subpleural areas in both lungs. The spleen was slightly large and moderately firm; it retained its shape. Permission for examination of the head was not granted.

Histologic examination of the vegetations on the tricuspid valve showed a moderate amount of fibrin in irregular strands and a large amount of débris, with a moderate number of polymorphonuclear cells. Careful search revealed gram-negative diplococci in widely scattered areas. There was a slight infiltration of

the myocardium with polymorphonuclear and mononuclear cells in scattered areas of the perivascular tissues. The reticulum of the spleen was prominent. There were small areas of hemorrhage and a slight infiltration of polymorphonuclear cells, as well as areas of partial atelectasis, in the lungs.

## COMMENT

The evidence that this case is one of gonococcal endocarditis seems fairly sufficient, although a cultural test for the organisms was not made. In the first place, infection of the eyes by the gonococcus during delivery becomes evident as an active conjunctivitis between the second and the fourth day, whereas cases due to other types of organisms become manifest several days later, as a rule. The positive observations in the exudate and the presence of gram-negative diplococci in the vegetation without any other types of organisms make the etiology fairly definite.

The large size of the vegetation indicates that it may have taken more than six or seven days to form. Examination revealed it to be of recent formation. There is the possibility of intra-uterine infection through the placenta; however, there is no evidence of this. There were no signs of infection in the mother which would be expected in the form of arthritis or endocarditis if the organisms were present in the blood stream. Furthermore, endocardial involvement by one route and conjunctival involvement by another would be unusual. If the lesion on the heart valve had been of much longer duration, there might have been more infiltration and less uniformity. It would have been less friable throughout, and possibly some organization would have been evident. Numerous sections of the vegetation have been made.

I have been unable to find the report of a case of gonococcal endocarditis secondary to conjunctivitis. Available textbooks on ophthalmology fail to mention it as a complication. It is true that cases in which a necropsy was not performed may have been overlooked. Secondary involvement of the eye is stressed, and that of the meninges has been mentioned. Lucas<sup>5</sup> (1899) reported a series of 23 cases of arthritis following ophthalmia neonatorum. Arthritis secondary to conjunctivitis has also been mentioned by Fuchs.<sup>6</sup>

The localization of this lesion may be associated with the patent ductus arteriosus. In an analysis of cases of cardiac anomalies, Abbot<sup>7</sup> found that endocarditis develops in 22 per cent of the cases of patent ductus arteriosus. In such cases, the vegetations are frequently located

5. Lucas, Clement: *Lancet* **1**:230, 1899.

6. Fuchs, Ernst: *Textbook of Ophthalmology*, ed. 6, Philadelphia, J. B. Lippincott Company, 1919, p. 156.

7. Abbot, Maude: On the Incidence of Bacterial Inflammatory Processes in Cardiovascular Defects and on Malformed Semilunar Cusps, *Ann. Clin. Med.* **4**:189, 1925.

on the wall of the pulmonary artery. The increased thickness of the wall of the right ventricle may be associated with the patent ductus in the case herein reported.

Gonococcal endocarditis is found most frequently on the left side, but Thayer<sup>8</sup> has shown that there is a slightly greater tendency toward localization on the right than when other types of organisms are present. Kirkland<sup>9</sup> found that the lesions were on the right side alone in 9.65 per cent of all cases; on both sides in 9.65 per cent, and on the left side, in 80.7 per cent. The child in the case reported is the youngest patient in whom gonococcus was the etiologic agent; heretofore the cases reported have been secondary to genital infections.

#### CONCLUSIONS

1. A case of gonococcal endocarditis of the tricuspid valve in an infant 10 days old is reported.

2. In all probability, the endocarditis was secondary to gonorrheal conjunctivitis.

3. There was an associated patent ductus arteriosus, which may have been associated with the development and localization of the lesion.

4. The child in this case is the youngest patient having bacterial endocarditis and also the youngest patient having gonococcal endocarditis reported.

5. A report of endocarditis secondary to conjunctivitis could not be found in the literature.

---

8. Thayer, W. S.: On Cardiac Complications of Gonorrhea, *Bull. Johns Hopkins Hosp.* **33**:361, 1922.

9. Kirkland, H. B.: Gonococcus Endocarditis, *Am. Heart J.* **7**:360 (Feb.) 1932.